

What is claimed is:

1. A medical electrical lead, comprising:  
a component including a surface and a groove formed in the surface;  
a conductor extending within the lead and including a portion positioned within the groove of the component; and  
a resistance weld formed between the portion of the conductor and the component.
2. The medical electrical lead of claim 1, wherein the surface has a curved profile.
3. The medical electrical lead of claim 2, wherein the surface of the component forms an inner diameter.
4. The medical electrical lead of claim 2, wherein the surface of the component forms an outer diameter.
5. The medical electrical lead of claim 2, wherein the surface of the component forms an inner diameter and the component further includes an outer electrode surface.
6. The medical electrical lead of claim 5, wherein the outer electrode surface includes a titanium nitride coating.
7. The medical electrical lead of claim 1, wherein the conductor is a cable.
8. The medical electrical lead of claim 1, wherein the conductor is a coil.

9. The medical electrical lead of claim 1, wherein the groove extends approximately aligned with a longitudinal axis of the component.
10. The medical electrical lead of claim 1, wherein the groove extends approximately transverse to a longitudinal axis of the component.
11. The medical electrical lead of claim 2, wherein the groove spirals about a portion of a circumference of the surface.
12. The medical electrical lead of claim 1, wherein the groove includes an approximately semi-circular cross-section.
13. The medical electrical lead of claim 1, wherein the groove includes an approximately v-shaped cross-section.
14. The medical electrical lead of claim 1, wherein the groove includes a depth and the portion of the conductor positioned within the groove includes a pre-weld diameter, the pre-weld diameter being greater than the depth of the groove.
15. A method for forming a resistance weld between a conductor and a component of a medical electrical lead, the method comprising steps of:
  - placing a portion of the conductor within a groove formed in a surface of the component;
  - pressing a welding electrode against the portion of the conductor; and
  - applying a welding pulse while continuing to press the electrode, the electrode being stopped from flattening the cable by contact with the surface of the component on either side of the groove.

16. The method of claim 15, wherein the surface of the component forms an inner diameter and the welding electrode is inserted within the inner diameter.

17. The method of claim 16, wherein the surface of the component forms an outer diameter.

18. The method of claim 15, wherein the conductor is a cable.

19. The method of claim 15, wherein the conductor is a coil.

20. The method of claim 15, further comprising a step of applying a pre-weld pulse to condition the component and wherein the surface of the component forms an inner diameter and an outer surface of the component forms an electrode including a titanium nitride coating.

21. The method of claim 15, wherein the welding pulse peaks at a current between approximately 600 amps and approximately 700 amps

22. The method of claim 20, wherein the pre-weld pulse peaks at approximately 400 amps.

23. The method of claim 15, wherein a force applied in pressing the welding electrode against the portion of the conductor is greater than approximately 5 pounds.

24. The method of claim 23, wherein the force is between approximately 6 pounds and approximately 10 pounds.